

Using fallout radionuclides to investigate recent overbank sedimentation rates on river floodplains: An overview

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Abstract

Copyright © 2014 IAHS Press. Information on rates of overbank sedimentation on river floodplains is needed for a variety of purposes. Use of ^{137}Cs and $^{210}\text{Pb}_{\text{ex}}$ measurements provides an effective means of estimating medium-term floodplain sedimentation rates and that approach has now been successfully used in many areas of the world. This contribution reviews the use of ^{137}Cs and $^{210}\text{Pb}_{\text{ex}}$ measurements in floodplain sedimentation investigations and discusses some of the important sampling requirements and key issues associated with interpreting the measurements, and subsequently deriving reliable estimates of sedimentation rates. The potential use of other radionuclides, including ^{241}Am , $^{238,239+240}\text{Pu}$, and ^7Be is considered, and the advantages of using two or more radionuclides, in combination, is highlighted.

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Keywords

^{137}Cs , ^{210}Pb , $^{239-240}\text{Pu}$, ^7Be , bomb derived-fallout, Chernobyl fallout, fallout radionuclide, geochronology, overbank sedimentation rates, river floodplain